

CENTRAL INTELLIGENCE AGENCY
INFORMATION REPORT
CONFIDENTIAL
FOREIGN DOCUMENTS OR RADIO BROADCAST

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF ESPIONAGE ACT 50 U. S. C., 91 AND 92, AS AMENDED. ITS TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW. REPRODUCTION OF THIS FORM IS PROHIBITED.

SOURCE Japanese military documents as indicated, (Inform

Coordinates given are approximate. Underline indicates main production area.

From Hwangsi Military Geography, Army Department, General Headquarters,
8 December 1943, FIB 201856/

1. 115 05 24 54 [Approximately 10 miles southeast of An-yuan, 115 05 24 52]
2. 117 09 28 58 [Approximately 7 miles east of Lo-p'ing, 117 09 28 58]

Kiangsi Province is China's main production center of tungsten and manganese. Manganese output for 1936 was about 20,000 metric tons.

From Kwangsi Military Geography, General Headquarters, 1 February 1944,
FDB 261576/

- | | |
|-----------------|------------------|
| 1. 112 07 23 33 | 9. 109 38 24 15 |
| 2. 111 17 23 36 | 10. 109 33 23 37 |
| 3. 110 28 23 33 | 11. 109 53 23 36 |
| 4. 110 38 23 30 | 12. 109 18 22 36 |
| 5. 110 32 23 15 | 13. 108 45 24 30 |
| 6. 110 12 23 09 | 14. 108 27 23 13 |
| 7. 110 19 23 06 | 15. 108 23 22 38 |
| 8. 110 06 23 20 | 16. 107 04 22 33 |

Manganese, tungsten, tin, antimony and coal are the main mineral resources of Kwangsi. Manganese output for 1936 was 45,890 tons; 1937, 53,690 tons; 1938, 19,400 tons; 1939, 3 tons. The estimated reserves are 6,900,000 tons.

- 3 -

CLASSIFICATION CONFIDENTIAL

[illegible]

~~CONFIDENTIAL~~

CONFIDENTIAL

50X1-HUM

C. Honan Province

From Honan Military Geography, General Staff Headquarters, 25 August 1943,
FDB 220942/

1. 113 22 29 25 (Approximately 11 miles east of Yo-chou, 113 12 29 28)
2. 112 34 27 55
3. 113 08 27 17
4. 112 50 26 20
5. 112 41 26 14
6. 112 18 26 34
7. 112 53 25 32

Honan Province, an important mineral center of China, produces iron, coal, antimony, manganese, zinc, and lead. The manganese output in 1929 was 16,300 tons; 1930, 37,100 tons; 1931, 11,000 tons; 1932, 12,000 tons.

D. Kansu Province

From General Data on Kansu Province, General Staff Headquarters, 4 November
1943, FDB 220945/

1. Chin-yuan (104 32 36 37)
2. P'ing-liang (106 29 35 31)

E. Hupsh Province

From Metallic Minerals of Hupsh Province, General Staff Headquarters, August
1940, FDB 212986/

1. Fai-yang-lin, Ta-yeh Hsien

a. Name.

Fai-yang-lin Manganese and Iron Mine

b. Location

Southeast of T'ieh-shan-p'u

c. Geological Data

The main ore deposits are found in crevices running north northeast and south southeast for some 1,200 meters. In addition to these deposits, dolomite and manginite containing red and brown manganese are found in mountains located to the north and south. Ores contain 52 percent iron and 5 percent manganese.

d. Output

This mine was started before 1899, but its operation was suspended soon after its opening. During its operation, it produced some 1,500 tons of ores.

2. Yin Shan, Yang-hsin Hsien

a. Name

Yin Shan Manganese and Iron Mine

b. Location

Eight kilometers north of Yang-hsin (114 49 29 41)

- 2 -

CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL

50X1-HUM

c. Geological Data

Clay slate can be found underneath the Yang-hsin limestone which constitutes the geological structure of this area. The ore deposits run north-west and southeast along a narrow ridge of the Yin Shan, a branch range of the Hsing-kuo Shan. The deposits are mainly of limestone and clay slate which contains limonite and soft manganese. Analyses made for manganese content reveal the following:

	Grade A Ores (%)	Medium Grade Ores (%)
No 1 Mine	32.99	
No 2 Mine	29.79	
No 1 Deposits	29.46	12.80

F. Hunan Province

From Metallic Minerals of Hunan Province, General Staff Headquarters,
August 1940, FDB 215311/

The manganese reserves of Hunan Province are estimated at about 2 million tons. Before 1926 this province was the main manganese source of China, producing about 80 percent of the total output. Later Hunan was surpassed by Kwangsi. Production has been stepped up since 1930, and Hunan is again one of the most important manganese-producing areas of China. A survey conducted by the Pei-p'ing Geological Survey Office named Hsiang-t'an Hsien of Hunan Province as having the third largest manganese reserves in China. According to the survey, the large reserve areas are as follows: (1) Ch'in Hsien, Kwangtung, 12,000,000 tons; (2) Wu-hsuan Hsien, Kwangsi, 6,000,000; (3) Hsiang-t'an Hsien, Hunan, 1,300,000; (4) Lo-p'ing Hsien, Kwangsi, 1,200,758; (5) others; 2,000,000 tons.

Classification of Hunan's manganese-containing layers by geological era shows that secondary enrichment deposits of the Silurian, Devonian and Mid-Ordovician eras are found at: (a) Shang-wu-tu and Chiu-t'an-ch'ung in Hsiang-t'an Hsien; (b) Pa-chiao-ling, Yo-yang Hsien; (c) Ch'eng-wei-chiao, An-jen Hsien; and (d) P'en-yang, Cha-chia, Chen-wang and Chia-ch'ung.

Secondary enrichment deposits of the Permian era are found at: (a) Pai-fang, Ch'ang-ning Hsien; (b) both banks of the Ch'un Shui flowing between Ch'ang-ning and Lei-yang Hsiens; (c) Li-chiang-p'u, Heng-yang Hsien; (d) Wu-ch'iao-p'u and Kung-p'ing-hsu areas in Lei-yang Hsien; (e) Pai-yun-hsien, Ch'un Hsien; and (f) Nan-hsiang, Yu Hsien.

In addition to the above deposits, manganese-bearing ores can be found at Shao-yang and Li-ling Hsiens in central Hunan, and in Ju-ch'eng, Yung-hsing and Hwei-yang Hsiens in southern Hunan but no detailed information on these deposits is available.

1. Pa-chiao-ling, Yo-yang Hsien

a. Name

Pa-chiao-ling Manganese Mine

b. Location

Twenty miles southeast of Yo-yang (113 12 29 28); 1.66 miles west of Ch'ing-kang Station; 8.35 miles northeast of Jung-chia-wan on the Kwangtung-Nan-k'ou Railroad.

c. Geological Data

It is said that some of the manganese-bearing strata reach a thickness of 300 meters. The deposits, similar to those found in the Shang-wu-tu area, are regarded as among the best manganese-containing ores of China. Three different

- 3 -

CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL

50X1-HUM

kinds of deposits are found in the Ta-yuan-ch'ung and Hsiao-yuan-ch'ung areas. They include: (1) those found in small quantities in spherical formations of sandstone quartz; (2) those found hemmed between arenaceous and siliceous shales, whose thicknesses range from one to 10 centimeters; (3) those found in the veinlets of shale crevices and joints interwoven in a lattice structure, the shale generally being effloresced.

The outcropped deposits run north and south for a distance of about 2 kilometers. It is possible that these deposits may extend farther north.

d. Quality of Ores

The deposits contain both soft and hard manganese; the hard is found in crust or botryoidal stalactites. The following table gives an analysis of the ore content percentage:

	<u>Mn</u>	<u>Fe</u>	<u>Si</u>
Sandstone	15.4	31.6	19.4
Shale	33.5	13.3	16.5

e. Reserves

An accurate estimate of the reserves is difficult because only 200 meters of the outcropped deposit can be detected. It is possible, however, that this deposit may extend for some 1,500 meters, and contain about 138,600 tons of reserve ores. Available data on the deposit gives the length as 1,500 meters; height, 70 meters; thickness, 4 meters; density (sp gr), 3.0; inclination, 40 degrees; and manganese content, 11 percent.

2. Shang-wu-tu, Hsiang-t'an Ksien

a. Name

Chang-wu-tu Manganese Mine

b. Location

Ten miles north northeast of Hsiang-t'an (112 51 27 54); 20 miles southwest of Ch'ang-sha (112 59 28 12); and about 6 miles west of T'an-t'ang-tzu on the banks of Hsiang-hsiang Ho.

c. Transportation

A light railroad line between P'ing-t'ang and Niu-p'o-t'ang and the road between Niu-p'o-t'ang and T'an-t'ang-tzu were constructed by the Yu-shang Company. Both river and road transport from T'an-t'ang-tzu to Ch'ang-sha is very good.

d. Geological Data

The deposits are for the most part of sedimentary formation hemmed in between sandstone and shale. The strata containing the deposits generally follow the contour of the surface of the ground and are widely distributed throughout the area. The underground deposits can be detected easily by following the color of sandy shale found on the ground surface. Such shale generally indicates the location of the deposits.

e. Quality of Ores

The ores found in this area are regarded as among the best manganese-bearing ores in China. The following information is from a report made by the Hsiang-t'an Manganese Office in 1930.

- 4 -

CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL

50X1-HUM

<u>Location</u>	<u>Type</u>	<u>Mn Content</u> (%)	<u>Si Content</u> (%)
Hsien-feng-ling	Soft	43.77	13.24
Hsien-feng-ling	Hard	42-53.28	5.64-15.20
Yao-wa-tzu	Hard	43.31-51.85	5.44-14.00
Sha-jen-p'o	--	42.23	15.50
Lao-shu-wa	Soft	39.47	22.86
Ma-wa-nei	Soft	43.03	18.50
Leng-shui-t'ang	Hard	36.09	13.14
Ta-wa	Soft	43.89	18.75

f. Reserves

The following information was obtained from the survey report by the Hunan Geological Survey Office in 1934.

<u>Location</u> (District)	<u>Length</u> (m)	<u>Width or</u> <u>Depth (m)</u>	<u>Reserves</u> (tons)	<u>Strata</u>
Hua-ch'i-shan	600	20 (w)	18,000	Syncline
T'ieh-t'ang	200	40 (w)	12,000	Small syncline
Yang-t'ien-hu	1,400	400 (w)	840,000	Syncline
Hu-chia-yuan	1,600	400 (w)	960,000	Syncline
Ch'i-p'o-shan	1,800	100 (d)	270,000	Syncline
Hsiao-chia-shan	1,800	200 (d)	45,000	Syncline
Min-yang-shan	3,500	100 (d)	520,000	--
Shih-ch'ung-ling	3,500	200 (d)	1,050,000	--

3. Chiu-t'an-ch'ung, Hsiang-t'an Hsien

a. Name

Chiu-t'an-ch'ung Manganese Mine

b. Location

On the border of Hsiang-t'an and Hsiang-hsiang Hsien; 30 miles southwest of Hsiang-t'an; 13.33 miles from Shih-t'an which is on the bank of Lien-shui No 13.33 miles southeast of Hsiang-hsiang (112 28 27 40)

c. Transportation

Since no river transport is available, the ore must be transported by land to Hsiang-hsiang or Shih-t'an-hai.

d. Geological Data

The deposits are found in five different layers, totaling about 45 meters in thickness, as follows: sandstone quart, 5 meters; (2) black and siliceous shale, 10 meters; (3) oolitic sandstone, 5 meters; (4) black and yellow shale, sandstone and siliceous shale, 20 meters; (5) sandstone, 5 meters.

No trace of manganese can be detected in the limestone found above the main manganese-bearing layers. The richest manganese-bearing ores are found along the eastern roadside of Ta-fu-p'ai, the thickness of the layers reaching about 0.6 meter. This deposit extends about 40 meters in length and 20 meters in width.

e. Quality of Ores

Both hard and soft manganese ores are found in this area. In addition, some bog manganese is located at the extreme southwest area of

- 5 -

CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL

50X1-HUM

Chiu-t'an-ch'ung. The deposits generally contain siderite, rhodonite, and other manganese sedimentary ores. According to the Fu-hua Company, the best-grade ores contain about 50.1 percent pure manganese while the second and third-grade ores contain about 48.3 and 45.1 percent, respectively.

f. Reserves

The following information was taken from a survey report prepared by the Hunan Geological Survey Office in 1934:

<u>Location</u>	<u>Length</u> (m)	<u>Thickness</u> (m)	<u>Depth</u> (m)	<u>Mn Content</u> (%)	<u>Reserve</u> (tons)
Ta-fo-p'ai (eastern hill- side)	40	0.6	120	100	8,640
Chiu-t'an-ch'ing	460	0.5	120	10	8,240
Hsia-lung-an- ch'ung	100	0.5	120	10	3,600
Pai-yun-an- ch'ung	150	0.5	60	10	1,350

4. Districts near An-jen (113 12 26 45), An-jen Hsien

a. Location

The deposits are found at Shih-hui-yao and Liang-shui-ch'ung located between 1.66 to 2.66 miles from the city.

b. Geological Data

In the district east of An-jen at Lai-chia-ta-vu and Liang-shui-t'ung, the deposits are found between layers of clay sandstone and sandstone. Deposits to the west of the city at Shih-hua-yao and Tung-t'ing-wo are outcropped.

c. Quality of Ores

According to a report made by the Hunan Geological Survey Office, the ores found near Shih-hua-yao are very good but those near Liang-shui-t'ung are regarded as very poor. The following table gives an analysis of the ore contents made by the survey office:

<u>Location</u>	<u>Mn</u> (%)	<u>Fe</u> (%)	<u>Si</u> (%)
Shih-hui-yao	40.8	12.8	9.6
Liang-shui-yao	26.2	13.2	25.2
Liang-shui-yao (poorer grade ores)	6.8	5.85	65.5

d. Reserves

Because there are few outcropped deposits in this area, it is extremely difficult to estimate the reserves accurately. However, there is a possibility that this area contains extensive deposits.

- 6 -

CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL

50X1-HUM

5. Banks of Ch'un Shui in Ch'ang-ning and Lei-yang Hsiens

a. Location

The deposits are found along the banks of the Ch'un Shui, one of the tributaries of the Hsiang Chiang flowing north from Kuei-yang to form a boundary between Lei-yang and Ch'ang-ning Hsiens. Two sand-pits, one at Yin-t'ien-hsu and the other at Yang-ko-chou, were constructed by the Han-Yeh-P'ing Company.

The Yin-t'ien-hsu sandpit is located about 16.66 miles east of Ch'ang-ning (112 23 26 24) on the western bank of the Ch'un Shui about 16.66 miles south of Sung-pai (112 36 26 39) which is on the bank of the Hsiang Chiang, and approximately 25 miles above the point where the Ch'un Shui flows into the Hsiang Chiang.

The Yang-ko-chou sandpit is located about 10 miles south of Yin-t'ien-hsu, and about 13.33 miles west of Wu-ch'iao-p'u which is on the Heng-ch'en Road.

b. Geological Data

Most of the manganese extracted from this area is hard; little soft manganese is found. Ores found in the sandstone are generally botryoidal, reniform, or circular and are interbedded. The deposits are of secondary enrichment.

c. Classification of Deposits by Sector

(1) Eastern Sector (Lei-yang)

The deposits are found from Hsi-ch'ung-kou northward to a point on the eastern bank of the Ch'un Shui opposite Yen-chou. This area extends for some 20 miles, but the most abundant deposits are found in an area of about 3.33 miles between Mei-nu-hsing to Chi-tzu-ling. The richest deposits are found in the Tu-chia-shan, K'u-chu-t'an, and Kuo-tzu-yao areas and at Tung-chia-k'ou.

(2) Western Sector (Ch'ang-ning)

The deposits in the western sector are found in two main areas as follows: (a) an area of about 10 square miles between Mai-tzu-yuan and Yen-chou; the richest ores are found at Mai-tzu-yuan; (b) Wu-li-ch'ung area, which extends about 1.66 miles, contains many outcropped deposits. The extraction of ore in this area has been handicapped greatly by transportation difficulties. Rich ore deposits are also found in the Ch'uan-t'ang-wei and Ling-pei areas.

d. Quality of Ore

An analysis of ore contents in this area is as follows:

<u>Location</u>	<u>Mn</u> (%)	<u>Fe</u> (%)	<u>Si</u> (%)
Mai-tzu-yuan	29.4	15.9	9.2
K'u-chu-t'an	26.8	16.2	10.7
Wu-li-ch'ung	19.4	26.6	23.2

e. Reserves

The following information regarding deposits was taken from a report compiled by the Hunan Geological Survey Office in 1934:

- 7 -

CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL

50X1-HUM

<u>Location</u>	<u>Length</u> (m)	<u>Depth</u> (m)	<u>Thickness</u> (m)	<u>Reserves</u> (tons)
Eastern Sector				
Mai-nu-hsing	2,200	20	1.5	59,400
Tu-chia-shan	1,000	20	1.5	27,000
K'u-chu-t'an	800	20	1.5	21,600
Kuo-tsu-wa	1,300	20	1.5	35,100
Hsin-wu-hsiac-chia				
Tung-chiang-k'ou	650	20	1.5	17,550

Western Sector

Mai-tsu-yuan				
Ling-pei	1,150	20	1.5	31,250
Ch'uan-t'ang-wei	250	20	1.5	6,750
T'ang-chia	150	20	1.5	4,050
Ian-chou	450	20	1.5	12,150
Wu-li-ch'ung	700	20	1.5	18,900

- E N D -

- 8 -

CONFIDENTIAL**CONFIDENTIAL**